

Amendments to the Claims:

Claims 1, 3-12, 14-23, 25-35, 38-50, and 52-60 are currently pending. Claims 12, 17, 18, and 49 have been amended and claim 51 has been canceled. This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (Previously Presented) A system for verifying the integrity of a signal transmitted from a space vehicle, comprising:
 - a transmitter in the space vehicle configured to output the signal;
 - a transmitting antenna mounted on the space vehicle configured to receive the signal from the transmitter and to transmit the signal;
 - a receiving antenna mounted on the space vehicle configured to receive the signal from the transmitting antenna;
 - a receiver in the space vehicle configured to receive the signal from the receiving antenna; and
 - a processor configured to verify an integrity of the signal as received by the receiver.
2. (Canceled).
3. (Previously Presented) The system of claim 1, wherein the space vehicle is a Global Positioning System satellite.
4. (Previously Presented) The system of claim 1, further including:
 - a memory configured to store a first digital message, wherein the processor is configured to verify the integrity of the signal as received by the receiver by extracting a second digital message from the signal as received by the receiver and comparing the first digital message with the second digital message.

5. (Previously Presented) The system of claim 4, wherein the second digital message is a GPS navigation message.

6. (Previously Presented) The system of claim 1, wherein the processor is configured to verify the integrity of the signal as received by the receiver by comparing a waveform of the signal as received by the receiver with waveform data stored in a memory.

7. (Previously Presented) The system of claim 1, wherein the receiver is configured to receive the signal transmitted from the transmitter and verify the integrity of the signal as transmitted from the transmitter by comparing the signal as transmitted from the transmitter with data stored in a memory.

8. (Previously Presented) The system of claim 1, wherein the processor is configured to generate an integrity message that indicates accuracy and/or the integrity of the signal as received by the receiver.

9. (Original) The system of claim 8, wherein the integrity message is included in a GPS navigation message transmitted by the transmitter.

10. (Previously Presented) The system of claim 8, wherein the integrity message is transmitted over a separate channel from a channel transmitting a GPS navigation message.

11. (Previously Presented) The system of claim 10, wherein the separate channel is an L5 channel.

12. (Currently Amended) A system for verifying the integrity of a signal transmitted from a Global Positioning System (GPS) satellite, comprising:

a transmitting antenna mounted on the ~~space vehicle~~ GPS satellite configured to transmit the signal;

a receiving antenna mounted on the ~~space vehicle~~ GPS satellite configured to receive the signal as transmitted by the transmitting antenna; and
a processor configured to verify an integrity of the signal.

13. (Canceled).

14. (Previously Presented) The system of claim 12, further including:
a memory configured to store a first digital message, wherein the processor is configured to verify the integrity of the signal as received by the receiver by extracting a second digital message from the signal as received by the receiver and comparing the first digital message with the second digital message.

15. (Original) The system of claim 12, wherein the signal includes a global positioning system navigation message.

16. (Previously Presented) The system of claim 12, wherein the processor is configured to verify the integrity of the signal as received by the receiving antenna by comparing a waveform of the signal as received by the receiving antenna with waveform data stored in a memory.

17. (Currently Amended) The system of claim ~~[[13]]~~ 12, wherein the receiving antenna is configured to receive the signal from the transmitting antenna and verify the integrity of the signal by comparing the signal with data stored in a memory.

18. (Currently Amended) The system of claim ~~[[13]]~~ 12, wherein the processor is configured to generate an integrity message that indicates accuracy and/or the integrity of the signal.

19. (Original) The system of claim 18, wherein the integrity message is included in a GPS navigation message transmitted by the transmitter.

20. (Previously Presented) The system of claim 18, wherein the integrity message is transmitted over a separate channel from a channel transmitting the GPS navigation message.

21. (Previously Presented) The system of claim 20, wherein the separate channel is an L5 channel.

22. (Previously Presented) A system for verifying the integrity of a transmitted signal, comprising:
a transmitter for transmitting a signal from a Global Positioning System satellite;
a receiver for receiving the signal transmitted by the transmitter; and
a processor for verifying the integrity of the signal by performing a check of the signal as received by the receiver.

23. (Previously Presented) The system of claim 22, further including:
a transmitting antenna for transmitting the signal from the transmitter; and
a receiving antenna for receiving the signal as transmitted by the transmitting antenna.

24. (Canceled).

25. (Previously Presented) The system of claim 22, further including:
a memory for storing a first digital message, wherein the processor verifies the integrity of the signal by extracting a second digital message from the signal as received by the receiving antenna and comparing the first digital message with the second digital message.

26. (Previously Presented) The system of claim 22, wherein the processor is configured to verify the integrity of the transmitted signal by comparing a waveform of the signal as received by the receiving antenna with waveform data stored in a memory.

27. (Previously Presented) A system for verifying the integrity of a signal transmitted from a space vehicle, comprising:

a transmitting antenna mounted on the space vehicle configured to transmit the signal;

a receiving antenna mounted on the space vehicle configured to receive the signal as transmitted by the transmitting antenna; and

a processor configured to verify an integrity of the signal; wherein the signal includes a global positioning system navigation message.

28. (Original) The system of claim 27, wherein the space vehicle is a Global Positioning System satellite.

29. (Previously Presented) The system of claim 27, further including:

a memory configured to store a first digital message, wherein the processor is configured to verify the integrity of the signal by extracting a second digital message from the signal as received by the receiving antenna and comparing the first digital message with the second digital message.

30. (Previously Presented) The system of claim 27, The system of claim 12, wherein the processor is configured to verify the integrity of the signal by comparing a waveform of the signal as received by the receiving antenna with waveform data stored in a memory.

31. (Previously Presented) A method for verifying the integrity of a transmitted signal, comprising:

transmitting a signal from a transmitter on a space vehicle;

receiving the signal at a receiver on the space vehicle;

verifying the integrity of the signal;

generating an integrity message that indicates accuracy and/or integrity of the signal; and

incorporating the integrity message into a GPS navigation message transmitted by the transmitter.

32. (Previously Presented) The method of claim 31, further including:

storing a representation of the signal in a memory prior to transmission.

33. (Currently Amended) The method of claim 32, wherein the verifying of the integrity of the transmitted signal comprises

comparing the the signal as received by the receiver with the representation of the signal stored in the memory.

34. (Previously Presented) The method of claim 33, wherein the verifying of the integrity of the transmitted signal comprises comparing a waveform of the signal as received by the receiver with waveform data stored in the memory.

35. (Previously Presented) The method of claim 33, wherein the receiving of the signal comprises receiving the signal from an output of the transmitter, and wherein the verifying the integrity of the signal comprises comparing the signal from the output of the transmitter with data stored in the memory.

36 - 37 (Canceled).

38. (Previously Presented) The method of claim 31, further including:
transmitting the integrity message over a separate channel from a channel transmitting a GPS navigation message.

39. (Previously Presented) The method of claim 38, wherein the separate channel is an L5 channel.

40. (Previously Presented) A system for verifying the integrity of a signal transmitted from a space vehicle, comprising:

a transmitter in the space vehicle configured to output the signal;
a receiver in the space vehicle configured to receive the signal from the receiving antenna; and

a processor configured to verify an integrity of the signal as received by the receiver;

wherein the processor is configured to generate an integrity message that indicates accuracy and/or the integrity of the signal as received by the receiver, and wherein the integrity message is included in a GPS navigation message transmitted by the transmitter.

41. (Previously Presented) The system of claim 40, further comprising:
a transmitting antenna mounted on the space vehicle configured to transmit the signal output from the transmitter; and
a receiving antenna mounted on the space vehicle configured to receive the signal as transmitted from the transmitting antenna.

42. (Previously Presented) The system of claim 40, wherein the space vehicle is a Global Positioning System satellite.

43. (Previously Presented) The system of claim 40, further including:
a memory configured to store a first digital message, wherein the processor is configured to verify the integrity of the signal as received by the receiver by extracting a second digital message from the signal as received by the receiver and comparing the first digital message with the second digital message.

44. (Previously Presented) The system of claim 43, wherein the second digital message is a GPS navigation message.

45. (Previously Presented) The system of claim 40, wherein the processor is configured to verify the integrity of the signal as received by the receiver by comparing a waveform of the signal as received by the receiver with waveform data stored in a memory.

46. (Previously Presented) The system of claim 40, wherein the receiver is configured to receive the signal transmitted from the transmitter and verify the integrity of the signal as transmitted from the transmitter by comparing the signal as transmitted from the transmitter with data stored in a memory.

47. (Previously Presented) The system of claim 40, wherein the integrity message is transmitted over a separate channel from a channel transmitting a GPS navigation message.

48. (Previously Presented) The system of claim 40, wherein the separate channel is an L5 channel.

49. (Currently Amended) A system for verifying the integrity of a transmitted signal, comprising:

a transmitter for transmitting a signal;

a transmitting antenna for transmitting the signal from the transmitter;

a receiving antenna for receiving the signal as transmitted by the transmitting antenna;

a receiver for receiving the signal transmitted by the transmitter; and

a processor for verifying the integrity of the signal by performing a check of the signal as received by the receiver and by comparing a waveform of the signal as received by the receiving antenna with waveform data stored in a memory.

50. (Previously Presented) The system of claim 49, further including:

a memory for storing a first digital message, wherein the processor verifies the integrity of the signal by extracting a second digital message from the signal as received by the receiving antenna and comparing the first digital message with the second digital message.

51. (Canceled).

52. (Previously Presented) A Global Satellite Positioning (GPS) system for verifying the integrity of a GPS signal transmitted from a GPS satellite space vehicle, the GPS system comprising:

a transmitter coupled to the GPS satellite configured to output the GPS signal;
a receiver coupled to the GPS satellite configured to receive the GPS signal output by the transmitter; and
a processor configured to verify an integrity of the GPS signal as received by the receiver.

53. (Previously Presented) The GPS system of claim 52 further comprising:
a transmitting antenna coupled to the GPS satellite configured to receive the GPS signal from the transmitter and to transmit the GPS signal; and

a receiving antenna mounted coupled to the GPS satellite configured to receive the GPS signal from the transmitting antenna.

54. (Previously Presented) The GPS system of claim 52, further comprising:
a memory configured to store a first digital message, wherein the processor is configured to verify the integrity of the GPS signal as received by the receiver by extracting a second digital message from the GPS signal as received by the receiver and comparing the first digital message with the second digital message.

55. (Previously Presented) The GPS system of claim 54, wherein the second digital message is a GPS navigation message.

56. (Previously Presented) The GPS system of claim 52, wherein the processor is configured to verify the integrity of the GPS signal as received by the receiver by comparing a waveform of the GPS signal as received by the receiver with waveform data stored in a memory.

57. (Previously Presented) The GPS system of claim 52, wherein the receiver is configured to receive the GPS signal transmitted from the transmitter and verify the integrity of the GPS signal as transmitted from the transmitter by comparing the GPS signal as transmitted from the transmitter with data stored in a memory.

58. (Previously Presented) The system of claim 52, wherein the processor is configured to generate an integrity message that indicates accuracy and/or the integrity of the GPS signal as received by the receiver.

59. (Previously Presented) The system of claim 58, wherein the integrity message is included in a GPS navigation message transmitted by the transmitter.

60. (Previously Presented) The system of claim 58, wherein the integrity message is transmitted over a separate channel from a channel transmitting a GPS navigation message.